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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/799,438	03/12/2004	Ki-Hung Lee	AB-1354 US	6225

7590 09/08/2005

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EXAMINER

CALEY, MICHAEL H

ART UNIT	PAPER NUMBER
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2871

DATE MAILED: 09/08/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/799,438

Applicant(s)

LEE ET AL.

Examiner

Michael H. Caley

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-6 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_.

## DETAILED ACTION

### *Drawings*

Figure 1 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

**Claims 1, 2, and 4-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kim et al. (U.S. Patent No. 5,945,256 "Kim") in view of Hazama et al. (U.S. Patent No. 6,583,854 "Hazama").**

Regarding claim 1, Kim discloses a method of manufacturing a liquid crystal display panel by a divisional exposure with a plurality of shots including first and second shots adjacent to each other (Figure 4), the method comprising:

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preparing a stitch area (Figures 4 and 5 elements 10 and 130) which is an overlapping area of the first and the second shots at a boundary between the first shot and the second shot and includes a plurality of unit areas (Figure 5), each unit area being light exposed or light-blocked in the first and the second shots (Column 4 lines 38-42); and

determining the positions or the sizes of the light-exposed unit areas or the light-blocked unit areas, the number of the light-exposed unit areas or the light-blocked unit areas gradually decreasing or increasing along a direction for the first shot to the second shot (Figure 5; Column 4 line 54 – Column 5 line 2).

Kim fails to disclose the step of determining the positions of the light-exposed unit areas by a random number generator. Kim, however, describes the shapes of the shot portions at the boundary as arbitrary and that the light-blocked and light-exposed regions of each shot as mixed at the boundary region, and without any type of mixing pattern (Figure 5; Column 4 lines 43-44, lines 64-67). Furthermore, Hazama teaches a random number generator function based on a gradation between boundary regions of first and second shots (Figure 8; Column 18 lines 1-32).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have determined the positions of the light-exposed unit areas by a random number generator. Hazama teaches a random configuration as effective to distribute the division pattern elements between shots so that the stitch areas are inconspicuous (Column 9 lines 40-45). One would have been motivated to use a random number generator to determine the positions of the light-exposed and light-blocked areas to ensure that the boundary areas between shot exposures be unnoticed.

Regarding claim 2, Kim discloses

a determined pitch of the unit areas (Column 4 lines 44-46);

a determined stitch area including a plurality of unit areas arranged in an NxM matrix (Column 4 lines 46-53);

a determined number of light-exposed unit areas or light-blocked unit areas in each row or in each column for the first and the second shots (Column 4 lines 54-64).

Kim fails to disclose the step of determining positions of the light-exposed unit areas or light-blocked unit areas in each row or in each column for the first and the second shots using the random number generator. Kim, however, describes the shapes of the shot portions at the boundary as arbitrary and that the light-blocked and light-exposed regions of each shot as mixed at the boundary region, and without any type of mixing pattern (Figure 5; Column 4 lines 43-44, lines 64-67). Furthermore, Hazama teaches a random number generator function based on a gradation between boundary regions of first and second shots (Figure 8; Column 18 lines 1-32).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have determined the positions of the light-exposed unit areas in each row or column by a random number generator. Hazama teaches a random configuration as effective to distribute the division pattern elements between shots so that the stitch areas are inconspicuous (Column 9 lines 40-45). One would have been motivated to use a random number generator to determine the positions of the light-exposed and light-blocked areas to ensure that the boundary areas between shot exposures are unnoticed.

Regarding claim 4, Kim discloses the unit area as including a pixel area, a plurality of pixel areas, or a portion of a pixel area (Column 5 lines 12-14).

Regarding claim 5, Kim fails to disclose the unit area as including a portion of a pixel area and the pixel area as provided with a domain defining member disposed between adjacent unit areas. Hazama, however, teaches such a unit area (Figures 9-12) with a domain defining member (element Ep3) disposed between adjacent unit areas.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have formed the unit areas and domain defining members as taught by Hazama in the display device manufacturing method disclosed by Kim. One would have been motivated to form the unit areas and domain defining members accordingly so that individual components in each pixel may be randomized in individual and differing configurations to further aid in making an inconspicuous stitch (Column 20 lines 5-14).

Regarding claim 6, Kim fails to disclose the pixel area as defined by intersections of two adjacent gate lines and two adjacent data lines and a boundary line between adjacent unit areas as extending parallel to the gate lines. Hazama, however, teaches such a unit area with a boundary line between adjacent unit areas as extending parallel to the gate lines (Figures 9-12).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have formed the unit areas and domain defining members as taught by Hazama in the display device manufacturing method disclosed by Kim. One would have been motivated to

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form the unit areas and domain defining members accordingly so that individual components in each pixel may be randomized in individual and differing configurations to further aid in making an inconspicuous stitch (Column 20 lines 5-14).

**Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kim in view of Hazama and in further view of Takasugi et al. (U.S. Patent No. 6,606,141 "Takasugi").**

Kim as modified by Hazama fails to disclose the unit area NxM matrix as configured such that N/M or M/N is a natural number. Takasugi, however, teaches a stitch area (Figure 4 element 45, Figures 5A and 5B; Column 7 line 61 – Column 8 line 10) in which N/M equals 2 (20 units across, 10 down).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have configured the stitch unit area disclosed by Kim such that N/M is a natural number. One would have been motivated to choose such a stitch size as an engineering expediency such as to make the boundary region less conspicuous by broadening the graduation region.

### ***Contact Information***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael H. Caley whose telephone number is (571) 272-2286. The examiner can normally be reached on M-F 8:30 a.m. - 5:00 p.m..

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Kim can be reached on (571) 272-2293. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Michael H. Caley

August 23, 2005

*mhc*

mhc

  
G.T. NGUYEN  
PATENT EXAMINER